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Additions to the Odonata of New Jersey, with Descriptions of two New Species.

BY PHILIP P. CALVERT, PH. D.

(With Plate III.)

The materials which have afforded the present paper are from two sources:

1. The collections made in Southern New Jersey by Mr. Erich Daecke, during the Summers of 1900-02. They are the source of all the additional species here added to the list I prepared for Prof. John B. Smith's "Insects of New Jersey" (Supplement to Ann. Rep. N. J. State Board of Agriculture, pp. 65-75, January, 1900).

2. A few species gathered by my wife and myself at or near Lake Hopatcong on the dividing line between Morris and Sussex Counties, Sept. 2-15, 1902. The most interesting of these were obtained in an unused wooden boathouse near Chestnut Point on the lake. Visiting this on September 14th, we found great numbers of exuviae of Odonata and of large spiders; dead

teneral imaginal Odonata (as well as more or less crumpled detached Odonate wings) were entangled in the remains of spiders' webs. The open doors of the boathouse were on the north side, the opposite south wall was not so easily accessible from the water as were the east and west walls on which the exuviae were chiefly found. On these two walls they reached to a height of twelve feet above the water. Each of these two walls had a single window in the middle, that of the west wall being closed, that of the east wall freely admitting light. We were not able to find any correlation in the distribution of the exuviae with the relative amount and distribution of light.

We collected most of the unbroken Odonate exuviae seen in this boathouse and I have identified them as follows: Agrioninae 1 sp. 1 ♂ 4 ♀, *Gomphus* sp. (*sordidus* group) 4 ♂ 1 ♀, *Dromogomphus spinosus* 2 ♂ 2 ♀, *Didymops transversa* 4 ♂ 1 ♀, *Neurocordulia obsoleta* 15 ♂ 16 ♀, *Tetragoncuria cynosura* 8 ♂ 10 ♀, *Epicordulia princeps* 1 ♂ 4 ♀, in all 73. The almost entire teneral Odonata found in the remains of webs were *Dromogomphus spinosus* 1 ♀, *Neurocordulia obsoleta* 1 ♀, and *Epicordulia princeps* 1 ♀; the abdomen of *D. spinosus* and the thorax of *E. princeps* had been partly eaten by something. The spiders' exuviae have been kindly determined by Dr. T. H. Montgomery, Jr., as of *Dolomedes urinator* or *D. idoneus*. As the above-named Odonata are usually seen flying not later than July in this region, it is quite likely that the transformations had occurred long previous to our visit to the boathouse.

The general condition of affairs strongly suggested that the spiders had preyed upon the newly transformed dragonflies,* a possible explanation of the generally observed rarity of such a species as *Neurocordulia obsoleta* in the imago state as contrasted with the abundance of its exuviae found here.

Prof. Needham has called attention† to a similar contrast in the genus *Ophiogomphus*, for which a similar explanation is perhaps to be sought.

* Years ago I observed young *Dolomedes sexpunctatus* feeding upon the soft parts of recently transformed imagos of *Ischnura verticalis* and *I. (Nehalennia) posita* which were not yet able to fly. Trans. Amer. Ent. Soc., xx, p. 205, 1893. See also McCook, Amer. Spiders and their Spinning Work, iii, p. 23, 1893.

† Can. Ent., xxix, p. 183; xxxi, p. 233.

ADDITIONS.

(Species new to the State list are marked * ; months and days are indicated by Roman and Arabic numerals respectively ; all unmarked records are due to E. Daecke, those marked C. to the writer, who has made all the identifications).

- Calopteryx apicalis* Burm. Iona VI, 8, 16.
Helærina americana Fabr. Berkshire, Morris Co., IX, 12, C.
Lestes unguiculatus Hag. Minnisink IX, C. Da Costa VII, 20, 27.
L. forcipatus Ramb. Belleplain IX, 8.
L. vigilax Selys. Lake Hopatcong IX, 14, C.
L. inequalis Walsh. Riverton VII, 19, A. R. Satterthwaite.
Argia tibialis Ramb. Laurel Springs VII, 21.
A. apicalis Say. Laurel Springs VII, 21.
A. bipunctulata Hag. Clementon VI, 3, H. L. Viereck.
 **Erythromma conditum* Hag. Iona V, 26, 1902, "everywhere."
 **Nehalennia gracilis* Morse. Iona VII, 13.
Enallagma civile Hag. Manumuskin VI, 11.
E. carunculatum Morse. Lake Hopatcong IX, 5, 8, C.
E. traviatum Selys. Lucaston VII, 2.
E. geminatum Kell. Lake Hopatcong IX, 8, 14, C.
E. divagans Selys. Iona VI, 8.
E. signatum Hag. Lake Hopatcong IX, 6, C.; Bear Pond, Sussex Co., IX, 15, C.
E. pollutum Hag. Lake Hopatcong IX, 6, 8, 14, C.
 **Telagrion? daeckii* n. sp. Manumuskin VI, 23.
 **Gomphus albistylus* Hag. (*nævius* Hag.) Lucaston VI, 13.
 **G. plagiatus* Selys. Manumuskin IX, 3.
Dromogomphus spinosus Selys. Lake Hopatcong IX, 14, exuviae and dead imago, C.
Epiæschna heros Fabr. Manumuskin, VI, 11.
Boyeria vinosa Say. A male flying in a railroad passenger car between Bound Brook and High Bridge IX, 2, C.
Basiaeschna janata Say. Manumuskin IV, 24.
Anax longipes Hag. An individual seen at Lucaston VI, 27 and VII, 2, 1902, by Mr. Daecke, was probably this species, judging from his description.
Epicordulia princeps Hag. Lake Hopatcong IX, 14, exuviae and dead imago, C.
Tetragoneuria semiaquea Burm. Manumuskin V, 21.
 **T. spinosa* Selys. Clementon V, 3.
Helocordulia (Neurocordulia) uhleri Selys. Manumuskin IV, 24; Cumberland Co., V, 5.
Neurocordulia obsoleta Say. Lake Hopatcong IX, 14, exuviae and dead imago, C.
Dorocordulia (Somatochlora) lepida Hagen. Iona V, 26.
Somatochlora filosa Hag. Iona VIII, 25; Anglesea IX, 8.

- S. provocans*, n. sp. Da Costa VII, 16.
Tramea carolina Hag. Lucaston IX, 2; Alloway VIII, 25.
Libellula axillena var. *incesta* Hag. Bear Pond, Sussex Co., IX, 15, C.
L. semifasciata Burm. Laurel Springs VI, 3; Glassboro VII, 9.
Plathemis trimaculata De Geer. Manumuskin VI, 11.
Celithemis ornata Ramb. Lucaston IX, 2. Da Costa VII, 4.
C. elisa Hag. Manumuskin VI, 24.
 **C. fasciata* Kirby. Lucaston VI, 27, VII, 2, "fifteen to twenty seen."
 **Sympetrum albifrons* Hag. Belle Plain IX, 16, 1901, IX, 8, 1902, "on which day I took 15 ♂ and could have taken three times as many; they were very local;" Manumuskin IX, 15, 1902.
S. obtrusum Hag. Belle Plain IX, 8.
S. corruptum Hag. Several miles back of Barnegat VII, 25, 1900 (W. T. Davis in litt., Nov. 1, 1901).

With these additions the Odonate fauna of New Jersey now comprises 101 species and ¹varieties distributed as follows: Calopteryginae 3, Agrioninae (*sensu Selysii*) 34, Gomphinae 8, Cordulegasterinae 1, Aeschninae 10, Cordulinae (*sens. Selysii*) 13, Libellulinae 32.

DESCRIPTIONS OF NEW SPECIES.

Telegriion? daeckii, n. sp. (Pl. III, figs. 1, 3-5).

♂. Pale blue, with the following black markings: a mid-basal dot on the labrum, a pair of dots and a transverse basal line on the nasus, lines in the grooves on the vertex, some of which (together with a black transverse stripe across the rear of the head and a black stripe along each eye margin) enclose a pair of large triangular pale blue postocular spots; a pair of curved stripes on the middle prothoracic lobe, a mid-dorsal thoracic stripe hardly wider than the carina, a short stripe at the lower end of the humeral suture and a still smaller one at its upper end, these two connected by a narrow black stripe in the New Jersey ♂, a very short line at the upper end of the second lateral thoracic suture; a mid-dorsal stripe with some metallic green reflections on abdominal segments 1-6 for almost the entire length of each segment (except for a narrow, transverse, basal, pale blue ring on 3-6, which is also present on 7), widened antepically on 2-6; a dorsal stripe on the basal three-fourths to four-fifths of 7, prolonged slightly farther toward the apex as a mid-dorsal line; a superior stripe on all the femora, and an anterior (external) line on the first tibiae. The apex of 7 and all of 8-10 except the sternum of 8 are pale blue.

Hind margin of prothorax convex, entire, flattened slightly on each side instead of being equally curved throughout.

Third tibiae with six well-developed spines on the anterior (outer) side. All the tarsal claws with a distinct tooth which is considerably smaller than the tip of the claw itself.

Tenth abdominal segment less than half as long as 9, smooth and simple above, its hind margin with a wide but shallow concavity.

Hypoprepia fucosa *Hbn.*, rare.
 Cisthene subjecta *Smith.*, rare.
 Euphanessa mendica *Walk.* com-
 mon.
 Ameria unicolor *Rob.*, rare.

Arctiidae.

Cydosia aurivitta *G. & R.*, rare.
 Crocota rubicundaria *Hbn.*, rare.
 " ferruginosa *Walk.*, rare.
 " opella *Grt.*, rare.
 " nigricans *Reak.*, rare.
 Utetheisa bella *Linn.*, common.
 " var. ornatrix *Linn.*, rare.
 Callimorpha clymena *Brown*,
 rare.
 Callimorpha lecontei *Bdv.*, rare.
 Arctia virgo *Linn.*, rare.
 " phyllira *Dru.*, rare.
 " figurata *Dru.*, rare.
 " decorata *Saund.*, common.

Arctia nais *Dru.*, common.
 " phalerata *Harr.*, common.
 Arctia anna *Grt.*, rare.
 " virguncula *Kirby.*, rare.
 " arge *Dru.*, rare.
 Pyrrharctia isabella *S. & A.*, com-
 mon.
 Phragmatobia rubricosa *Harr.*,
 rare.
 Leucarctia acraea *Dru.*, common.
 Spilosoma virginica, *Fab.*, com-
 mon.
 Spilosoma latipennis *Stretch.*, rare.
 " antigone *Strk.*, rare,
 Hyphantria cunea *Dru.*, common.
 Euchætes egle *Dru.*, common.
 " collaris *Fitch.*, common.
 Epantheria scribonia *Stoll.*, rare.
 Halisidota tessellata *S. & A.*, com-
 mon.
 Halisidota caryæ *Harr.*, rare.

(To be continued.)

Collection Notes (Coleoptera).—1902.

By F. C. BOWDITCH.

Last year I captured at Dover, Mass., on red and black oak sprouts which had been killed by drought, about fifteen or twenty specimens of *Elytroleptus floridanus* *Lec.* All the specimens in my collection were from the South, and Messrs. Blanchard and Fenyes, to whom I gave specimens, were interested in its capture so far North. This spring I brought into the house some of the twigs on which I captured the beetles in 1901, and six imagoes hatched in April. On the 20th and 30th of May I paid visits to the same place and took upwards of one hundred specimens, most of them on the leaves. The weather, however, was most unfavorable and I failed to learn more of its habits.

Five examples of *Caliodes nobilis* *Say* occurred at Dover in June on oak stumps under the tender green sprouts which come from the stumps the first year after the tree is cut. The beetle is very lively, and upon being disturbed runs very

rapidly and takes flight, and unless the collector be looking particularly for it, its chances of escape are good. My captures heretofore have been one every few years.

Five examples of *Melasis pectinicornis* Mels. occurred at Marion, Mass., on a dead branch of *tupelo*. I took them at three different times during a period of two weeks, from July 7th to 25th, and always on the same branch. Each time I captured them I went carefully over every other *tupelo* in the neighborhood, but failed to strike any other specimen on any other tree.

Perigora atriceps Lec. occurred sparingly at Marion during the latter part of July and first half of August—some ten or twelve examples being beaten from thick matted grapevine and brush. *Microscopha clavicornis* Lec. was also taken at the same time rather plentifully.

To Mr. Blanchard belongs the credit of separating from some *Agabi* captured by us (Messrs. Blanchard, Fall and Bowditch), the rare *Agabus planatus* Sharp. It occurred in company with *Agabus gagates* in the debris in the bed of a small brook at Marion, in August. Later, in September, I took a few more of both sexes. It is easily distinguished from its allies by its thickened thoracic margin.

It was a good season at Marion for Stylopized wasps, and one example observed had seven *Xenos peckii* Kirby in its abdomen. I got five ♂'s and a number of wasps with the ♀'s protruding.

Xylotrechus sagittatus Fab. was very plenty in Marion in September on *freshly* cut white pine. After the tree has been down ten days or two weeks the beetle seems to almost leave it for fresher material. With it occurred great numbers of *Mono-hammus confusor* Kirby. Both these beetles were to be found on the wood within a few hours after it was cut.

For a day or two in July *Harmonia 12-maculata* Gebl. with *14-guttata-similis* Rand. were rather common on white birch, and I obtained a very good series of eighteen examples showing variations of marking, etc. Heretofore my captures have been one or two examples in a season. Also two examples which are wholly rufous and which I unite with it with a ?. These latter occurred on red cedar later in July.

Tropisternus 4-striatus Horn were very abundant in brackish pools at the rear of the beach at Marion.

It seems to have been a good season both here and at Marion for Buprestidæ. At Dover I took an example of *Cinyra gracilipes* Mels. (always rare here) on white oak, and saw numerous examples of *Chrysobothris azurea* Lec. running in a particularly impracticable tangle of brush and grapevine where I had only a very few moments to vainly try for them. Later I saw the same species at Marion, and took also a specimen of *Actenodes acornis* Say.

My summer was, however, too much broken up to admit of new explorations which I had planned at Marion.

Some Entomological Notes.

By F. F. CREVECŒUR, Onaga, Kansas.

In my experience in collecting insects, during the past dozen years, I have made some observations or discoveries which I have never seen in print, and as they may prove helpful or of interest to others engaged in the same diversion, I herewith give them.

During the early summer months, when insect life is rich in an abundance of species—many of which to amateurs will prove to be new to their collection—one will have much success in capturing an abundance of specimens, often replete with rare forms, by beating the weeds, bushes, shrubs and low limbs of trees on the leeward side of a grove or of the natural forest along our streams, if a strong wind is blowing at the time. In June I have taken many good things along the north side of the timber when the wind was blowing so strongly from the south that it was almost useless to look for anything on the prairie or in the depths of the timber, where one would naturally look for a rich fauna. A couple of years ago I took quite a number of *Ptosima gibbicollis* in a grove of redbud trees standing along the north side of a cornfield, the bulk of the forest being at the north, while the wind was blowing strongly from that direction. The past summer I took a number of rare species on the weeds fringing the north side of a small stream, sparingly grown to trees, which runs nearly due east, the wind being from the south when my captures were made. Here I

must record another observation, which perhaps partly accounted for my success the past summer. This fall I had occasion to beat the milkweed *Asclepias verticillata* for the beetle *Doryphora rogersii* and its larvæ. During the middle of the day I had no success at all, but near sundown, while getting the cows, I had the luck to capture one of the adult beetles and four of the larvæ. The next day I revisited the locality where my captures of the previous evening had been made, with the hope that I might take more specimens, but without success. Then I thought, perhaps, the time of day might have something to do with my capturing the beetle and its larvæ, so that evening I returned to the milkweed patch, and was rewarded with four additional larvæ. This set me to thinking why only at evening the species was taken, and I concluded that the species kept low down during the heat of the day, but when the sun had got low down and the dew commenced to gather on the lower grass the larvæ were driven from their retreat by the growing coolness caused by the gathering dew and climbed up higher where it was warmer. My captures along the stream, mentioned further up, were made near sundown, while getting the cows home, and I think the same cause was at work which made my collecting there so fruitful.

Riley, in his "Directions for Collecting and Mounting Insects," recommends the use of mucilage made of gum-shellac dissolved in alcohol, for mounting specimens on cardboard or pin-points. When I made my first attempt to dissolve some of the gum in alcohol, I was fortunate in making a perfect solution of the gum, with which I mounted many of my earlier specimens. After the lapse of a year or so, my mucilage had evaporated so much that it had become too thick for use, and I put in a little alcohol to thin it when, instead of becoming more fluid, it seemed to curdle and became unfit for use. I tried to prepare a new supply by using fresh gum, and was again disappointed, as the the gum instead of dissolving assumed a jelly-like state, which was useless for my purpose. I made several other attempts to make a supply of the shellac mucilage, but always without success. In desperation, I wrote